ANALYST:		VPDES NO	

Parameter: Biochemical Oxygen Demand
Method: Dissolved Oxygen Depletion

METHOD OF ANALYSIS Revised 09/05

	18TH EDITION OF STANDARD METHODS-5210 B [Ref. are only for SM]
	USGS I-1578-78
	AOAC 15TH EDITION 973.44
	ANSI ON PHOTOGRAPHIC PROCESSING EFFLUENTS P.17

		Y	N
1)	Are incubation bottles 250-300 mL capacity with ground glass stoppers? [2.a]		
2)	Are the bottles cleaned well with detergent, rinsed thoroughly, and drained before use? Is chromic acid excluded from cleaning process? [2.a]		
3)	Are nutrient solutions (calcium chloride, magnesium sulfate, ferric chloride, and phosphate buffer) clear, free of growths, contamination and solids, and within shelf lives? [3.a]		
4)	Is the phosphate buffer solution documented to be at pH 7.2 when prepared? [3.a]		
5)	Are all nutrient solutions added to dilution water at a rate of 1 mL/L of dilution water each (HACH slurry pillows are acceptable)? [4.a]		
6)	Is dilution water free of contamination or growths? [3.a]		
7)	Is sodium sulfite dechlorinating solution prepared fresh daily? [3.f]		
8)	Are chlorinated samples checked for chlorine using an appropriate method? **(Documentation Necessary)** [4.e.2]		
9)	Are samples containing residual chlorine, dechlorinated with sodium sulfite? [4.e.2]		
10)	Are samples checked for caustic alkalinity or acidity? (pH < 6.0 or > 8.0 SU) [4.e.1]		
11)	Are samples containing acidity or caustic alkalinity adjusted to fall between pH 6.5 and 7.5? [4.e.1]		
12)	If the initial D.O. exceeds saturation at 20^{o}C, is sample stripped of excess D.O. by agitation or aeration? [4.e.4]		
13)	Are sample initial dissolved oxygen concentrations between 7 mg/L and saturation? [6.b]		
14)	Are samples allowed to reach 20^{o}C before making dilutions? **(DOCUMENTATION NECESSARY)** [4.e.5]		
15)	Is dilution water saturated with dissolved oxygen at 20^{o}C before use? [4.a]		
16)	Are samples incubated in the dark? [2.b]		
17)	Are appropriate samples seeded? [4.d.1]		
18)	Is seed material appropriate? [4.d.1]		
19)	Is seed control series run for seeded samples? [4.d.2]		
20)	For seeded samples, is the calculated seed correction between 0.6 and 1.0 mg/L? 4.d.2]		

		Y	N
21)	If $CBOD_5$ is analyzed, are dilutions and seed correction series inhibited with 2.2% 2-chloro 6-trichloro-methyl pyridine (HACH nitrification inhibitor 2533 or equivalent)? Note - Polyseed-NX is not approved for use in VPDES testing. Do not add inhibitor to GGA. A separate seed correction series without inhibitor must also be analyzed so that GGA can be properly calculated. [4.e.6]		
22)	Are samples prepared without entraining air in BOD bottles? [4.f.1; Permit]		
23)	Are dissolved oxygen concentrations measured correctly (see Winkler/Azide or D.O. electrode Checklists)?		
24)	Are water seals maintained? [4.f.2]		
25)	Are samples incubated for 5 days? [4.f.2]		
26)	Is the final D.O. of at least one dilution at least 1 mg/L after 5 days? [5]		
27)	Is the D.O. depletion of at least one dilution at least 2 mg/L after 5 days? (Disregard if sample is not diluted.) [4.f]		
28)	Are all bottles meeting the depletion criteria averaged for final BOD results? [5]		
29)	Are blank depletions recorded on bench sheets? [4.h]		
30)	Are incubation dates and times recorded? [Permit]		
31)	Are dilutions capable of demonstrating permit excursions? [Permit]		
32)	Are at least 3 dilutions analyzed for each sample? [4.f]		
33)	Are sample results calculated correctly? [5] BOD (mg/L) = $\frac{(D1 - D2) - (B1 - B2)f}{P}$ where D1 = D.O. of diluted sample after preparation D2 = D.O. of diluted sample after 5 days P = decimal volumetric fraction of sample B1 = D.O. of seed control before incubation B2 = D.O. of seed control after incubation f = ratio of seed in sample to seed in control (% seed in D1)/(% seed in B1)		
34)	Is a dilution water blank run for each test series? [4.h]		
35)	Are BOD bottles (BLANK/SEED/SAMPLE/GGA) chosen at random? [Permit]		
36)	Is the dilution water blank D.O. depletion consistently less than 0.4 mg/L? [4.h]		
37)	Is a glucose-glutamic acid check run at least once each week of analysis? [4.c; SM1020 B]		
38)	Is the GGA prepared immediately before use? [3.h]		
39)	Is the BOD5 of the 2% dilution of the GGA standard within the range of 198 $\pm$ 30.5 mg/L? [6]		
40)	Is data flagged when QC problems occur (*e.g.*, GGA out of range, blank >0.4 mg/L, bubbles in bottle at end of incubation)? [Permit]		
41)	Is raw data evaluated to determine if toxicity is present? [5]		
42)	If toxicity is present, are BOD results reported properly? [5]		

PROBLEMS: